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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,026	10/17/2001	Donald Thompson	MS177822.1 (4960)	5644

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SENNIGER POWERS LEAVITT AND ROEDEL
ONE METROPOLITAN SQUARE
16TH FLOOR
ST LOUIS, MO 63102

EXAMINER
OPIE, GEORGE L

ART UNIT	PAPER NUMBER
2126	

DATE MAILED: 12/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/981,026	Thompson et al.
	Examiner	Art Unit	
	George L. Opie	2151	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will
  be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this
  communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1) <u>X</u> Responsive to communication(s) filed on <u>17 October 2001</u> .

2a) ___ This action is **FINAL**.   2b) <u>X</u> This action is non-final.

3) ___ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) <u>X</u> Claim(s) <u>1-41</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ___ Claim(s) _____ is/are allowed.

6) <u>X</u> Claim(s) <u>1-41</u> is/are rejected.

7) ___ Claim(s) _____ is/are objected to.

8) ___ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ___ The specification is objected to by the Examiner.

10) ___ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ___ The proposed drawing correction filed on _____ is: a) ___ approved b) ___ disapproved.

12) ___ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ___ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

     a) ___ All b) ___ Some * c) ___ None of the CERTIFIED copies of the priority documents have been:

         1. ___ received.

         2. ___ received in Application No. (Series Code / Serial Number) _____.

         3. ___ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

14) ___ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

14) <u>X</u> Notice of References Cited (PTO-892)
15) ___ Notice of Draftsperson's Patent Drawing Review (PTO-948)
16) <u>X</u> Information Disclosure Statement(s) (PTO-1449) filed <u>17 October 2001</u> .

17) ___ Interview Summary (PTO-413) Paper No(s). _____.
18) ___ Notice of Informal Patent Application (PTO-152)
19) *X* Other: Text Doc for USP6,4*/*,065

DETAILED ACTION

1.   Request for copy of Applicant's response on floppy disk:
Please help expedite the prosecution of this application by including, along with
your amendment response in paper form, an electronic file copy in WordPerfect,
Microsoft Word, or in ASCII text format on <u>a 3½ inch IBM format floppy disk</u>.
Please include all pending claims along with your responsive remarks. Only the
paper copy will be entered -- your floppy disk file will be considered a duplicate
copy. Signatures are not required on the disk copy. The floppy disk copy is not
mandatory, however, it will help expedite the processing of your application.
Your cooperation is appreciated.

2.   The U.S. Patents used in the art rejections below have been provided as
text documents which correspond to the U.S. Patents. The relevant portions of
the text documents are cited according to page and line numbers in the art
rejections below. For the convenience of Applicant, the cited sections are
highlighted in the *text documents*.

3.   Claim Rejections - 35 U.S.C. § 103

        The following is a quotation of 35 U.S.C. 103(a) which forms the basis for
all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed
or described as set forth in section 102 of this title, if the differences between the
subject matter sought to be patented and the prior art are such that the subject
matter as a whole would have been obvious at the time the invention was made
to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was
made.

4.   Claims 1-41 are rejected under 35 U.S.C. § 103(a) as being unpatentable
over Rich et al. (U.S. Patent 6,457,065) in view of "Scalable Concurrent
Counting", Herlihy et al. (ACM Transactions on Computer Systems, November
1995).

As to claim 1, Rich teaches a computerized method for synchronizing at least
one variable (system ... for maintaining the integrity and consistency of the
replicated objects, p10 46-50) among a plurality of members of a parent-child
hierarchy (distributed system ... represented using a tree structure, abstract)
based on data values exchanged between said plurality of members, wherein
each member has a calculated value of the variable (versioning of replicated
objects, p13 33-40) said method comprising:

sending a first data value from a child to a parent of the child (changed values ... are merged to its parent, p11 16-29) said first data value representing a contribution to the variable from the child and any members subordinate to the child in the hierarchy (changes propagate upward through the tree, Id.)

updating, by the parent (merges the replicas back to the parent, p11 6-15) a second data value with the received first data value (cause the modification level to be incremented, p14 15-48)

transmitting a third data value from the parent to the child (subsequent modification ... version is copied to a child, p14 15-48) said third data value representing a contribution to the variable from all members other than the child and other than any members subordinate to the child in the hierarchy (version is copied down ... process, the state value and external synchronization from the existing version are copied, p16 12-40) and

updating, by the child (new version is based on the parent, p11 43-49) a fourth data value with the transmitted third data value, said fourth data value representing a contribution to the variable from all members other than the child (node can merge all its object versions to a parent node, p11 50-57).
Rich does not explicitly disclose the additional limitations detailed below.

Herlihy teaches the "importance of parallelism for scalable performance of shared data stgructures.", page346 And the common data, or "the shared counter" is updated by incrementing a data value representing a contribution to the variable from all members. It would have been obvious to combine Herlihy's teachings with Rich because the concurrent counting research conclusions show more effective methods for multiprocessor coordination of shared objects.
As to claim 2, Rich teaches the child operates such that "its versions of replicated remote objects (including any changed values therein) are merged to its parent" following execution by the child, p11 16-29 which corresponds to the limitation of prior to sending the first data value, contributing, by the child, to the first data value by increasing the value of the variable as calculated by the child.

As to claims 3-4, Herlihy page346 "Message-Based Counter" teaches the respective node calculating (processor receiving the request) a value of the variable by summing the data value and the contribution by that node in the tree (increments the counter and sends a reply message containing the value of the counter).

As to claim 5, Herlihy page344 teaches the specific variable is a counter (object that holds an integer value and provides a fetch-and-increment operation).

As to claim 6, Rich's (p16 12-39) "parent version" objects include logical associations with respect to the shared object descendents so that it would have been obvious to provide the maintaining by the parent, an indicator for each child for each variable that has been updated independent of said child.

As to claim 7, Herlihy page348 teaches the asynchronous updating recitations (propagate through the network asynchronously).

As to claim 8, Rich teaches the parent and child are connected via the Internet (computing environment in which the present invention may be used includes an Internet environment, p7 15-19).

As to claims 9-10, Rich teaches arranging a plurality of variables in partitions (objects containing values/variables are structured in respective data segments, p11 6-29).

As to claims 11-12, Rich (p14 15-48) teaches When a version is copied to a child, the child version maintains 2 modification levels: the version its parent had at the time of the copy, and the child's modification level (which is initially set to the same value as the parent's version, and then incremented within the child transaction.)

As to claim 13, Rich teaches when there is a "failure of some sort, ... an error condition is returned",p18 12-29 which corresponds to the transmitting an error packet from the parent to the specific member if an error has occurred during registration or subscription.

As to claims 14-16, Rich (p11 43-49) teaches the "first-time access within the server transaction in the parent node causes a new version of the remote object to be registered" and from this, one skilled in the art would have provided the subscribing and registering recitations.

As to claims 17-21, Herlihy page356 teaches the multiple processors, memory and associated components for optimizing large scale concurrency.

As to claim 22, Rich teaches the one or more computer readable media having computer-executable instructions for performing the method recited in claim 1 (Software programming code which embodies the present invention is typically accessed ... from long-term storage media 230, such as a CD-ROM, p6 41-53).

As to claim 23, note the rejection of claim 1 above. Claim 23 is the same as claim 1, except claim 23 is a computer program product claim and claim 1 is a method claim.

As to claim 24, Rich teaches the interface component receives a child value from at least one child of the specific member (child can merge all its object versions to a parent, p11 50-57).
As to claims 25-26, Rich (p11 6-15) teaches "the present invention replicates remote objects from a parent node to a child node ... and merges the replicas back to the parent" for updating through component communications as claimed.

As to claims 27-28, Rich teaches the "version maintains 2 modification levels: the version its parent had at the copy time, and the child's modification", p14 15-48 which corresponds to the component stores the received parent and child values respectively.

As to claims 29-30, note the rejections of claims 11-12 above. Claims 29-30 are the same as claims 11-12, except claims 29-30 are computer program product claims and claims 11-12 are method claims.

As to claim 31, note the rejection of claim 13 above. Claim 31 is the same as claim 13, except claim 31 is a computer program product claim and claim 13 is a method claim.

As to claim 32, note the discussion of claim 1 supra. The limitations in claim 32 are functionally equivalent to the limitations in claim 1, but for the named variables for designated contributions in the shared objects. From the teachings of Herlihy in combination with Rich's object elements that intrinsically contain the data fields for specifying shared versions, one skilled in the art would have obviously included the identified variables as claimed, because the retention of discrete fields would enable more rapid access to the connected counts.

As to claim 33, note the discussion of claim 4 supra.

As to claim 34, Rich (p14 15-48) teaches the object information consists of "values as binary data" which, for one skilled in the art would obviously include the limitation of data values are 64-bit, unsigned integers.

As to claim 35, Rich (p14 15-48) teaches "[w]hen a version is first created for a replicated object, its modification level is set to zero" as claimed.

As to claim 36, note the rejection of claim 1 above. Claim 36 is the same as claim 1, except claim 36 is an apparatus claim and claim 1 is a method claim.

As to claim 37, note the rejection of claim 6 above. Claim 37 is the same as claim 6, except claim 37 is an apparatus claim and claim 6 is a method claim.

As to claim 38, see the rejection of claim 11 supra.

As to claim 39, see the rejection of claim 17 supra.

As to claims 40-41, note the discussion of claim 1 above. The limitations in claims 40-41 are functionally equivalent to the limitations in claim 1, but for the additional recitations of the servers as the nodes in the tree and the advertisement data as the object in the system. Rich (p8 43-57) teaches that "each node may act as both a client and a server" in the tree structure, and the advertisement data would naturally dovetail with Rich's object delivery/management system.

5.   The prior art of record and not relied upon is considered pertinent to the applicant's disclosure. Specifically, the below reference(s) will also have relevancy to one or more elements of the Applicant's claimed invention as follows:
U.S. Patent No. 6,772,418 to Morris which teaches the updating subscriptions in a publication system;
U.S. Patent No. 6,449,667 to Ganmukhi et al. which teaches the multi-node cooperative computing messages;
U.S. Patent No. 6,021,433 to Bracho et al. which teaches the advertisement information/events updating for publishers/subscribers;
U.S. Patent No. 5,873,097 to Harris et al. which teaches the management of shared, distributed data objects; and,
U.S. Patent No. 5,850,520 to Griebenow et al. which teaches the advertisement delivery and tracking system.

Contact Information:

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system.

Status information for published applications may be obtained from either Private-PAIR or Public-PAIR.

Status information for unpublished applications is available through Private-PAIR only.

For more information about the PAIR system, see   http://pair-direct.uspto.gov.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

All responses sent by U.S. Mail should be mailed to:
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to Crystal Park Two, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist). All hand-delivered responses will be handled and entered by the docketing personnel. Please do not hand deliver responses directly to the Examiner.

The fax phone number for the organization where this application or

proceeding is assigned is 703-872-9306.

All OFFICIAL faxes will be handled and entered by the docketing personnel. The date of entry will correspond to the actual FAX reception date unless that date is a Saturday, Sunday, or a Federal Holiday within the District of Columbia, in which case the official date of receipt will be the next business day. The application file will be promptly forwarded to the Examiner unless the application file must be sent to another area of the Office, e.g., Finance Division for fee charging, etc.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist at **(703) 305-9600.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Opie at (571) 272-3766 or via e-mail at *George.Opie@uspto.gov*. Internet e-mail should not be used where sensitive data will be exchanged or where there exists a possibility that sensitive data could be identified unless there is an express waiver of the confidentiality requirements under 35 U.S.C. 122 by the Applicant. Sensitive data includes confidential information related to patent applications.

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